ENERGY USE ANALYSIS

Dan L. Ard

TALQUIN ELECTRIC COOPERATIVE, INC.
WATER & WASTEWATER, INC.

It is our goal to educate our membership, employees and builders about energy conservation, and to facilitate the process of analysis and improvement of homes and businesses to the satisfaction of each individual as suits their needs.

ENERGY SERVICES MISSION STATEMENT

THE ENERGY USAGE PUZZLE

Reducing energy waste and consumption

FOR WHOM ?

EXCESSIVE USE vs. GREEN CONSCIOUSNESS

BOTH ARE VALID CANDIDATES

STEP 1

SELF ANALYSIS

RESOURCES

STEP 2

EXPERT ADVISE

ANALYSIS TOOLS AVAILABLE

STEP 3

PLAN OF ACTION

LOW HANGING FRIUT

ROI

RETURN ON INVESTMENT

DOLLARS THAT MAKE SENSE

SATISFACTION

INDIVIDUAL COMFORT LEVEL

IT'S YOUR $ MONEY

IT'S ALL RELATIVE…

How much are you willing to spend?

OR

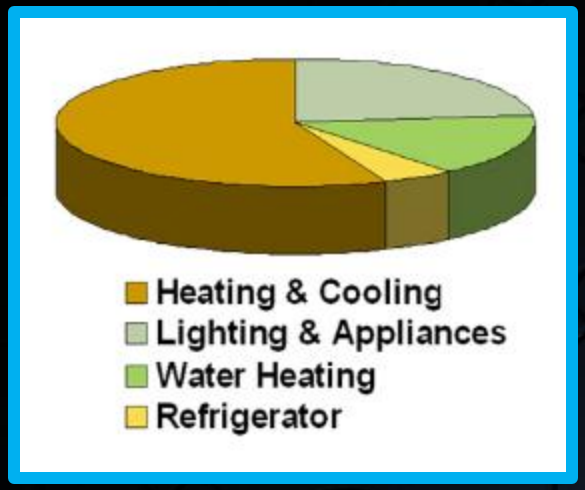
Percent % of your monthly budget?

STEP 1

SELF ANALYSIS

LIFE STYLE OBSERVATION

- Education and awareness are the primary tools necessary to adjust and correct poor energy consumption habits.



RESOURCE TOOLS

- HGTV, internet access to informational sites, literature provided through utilities and Government agencies.

- www.talquinelectric.com
- Home Energy Suite

AS AN EXAMPLE …

IS IT NECESSARY ?

- *DOES THIS SEEM LIKE A WISELY SPENT CHOICE FOR YOUR ENERGY $ DOLLAR ?*

Average cost = $.10 per hour x avg. operation 12 Hrs. x 30 days = $36 a month

STEP 2

EXPERT ADVISE

INFORMATION GATHERING

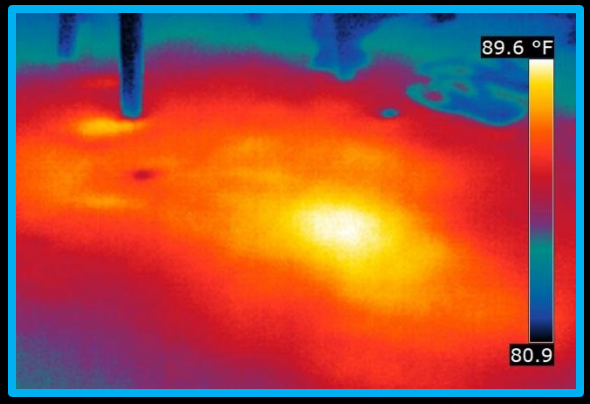
- The qualifications, skills and experience to analyze data collected from all consumptive loads, and building performance, allows specific targeted projections and recommended corrective actions.

- State certified energy raters
- National rated thermographers
- Licensed electricians

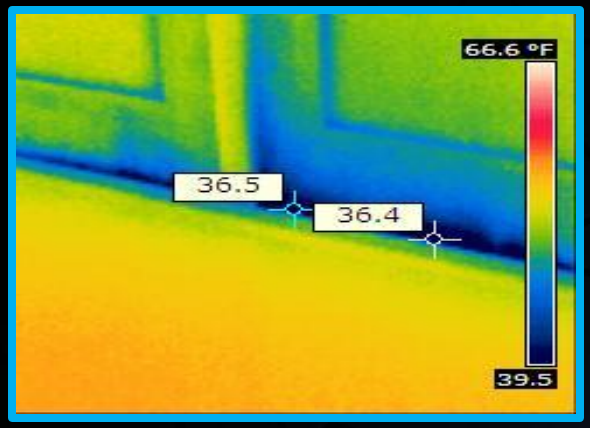
ANALYSIS TOOLS AVAILABLE

FOR EXAMPLE ...

ONLY BY THERMOGRAPHIC IMAGING



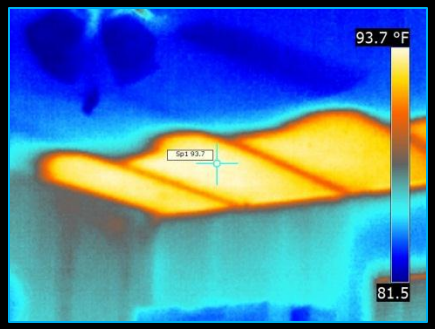
- IR IMAGE OF A BROKEN HOT WATER LINE BENEATH THE CONCRETE SLAB OF A RESIDENCE.



- IR IMAGE OF EXTREME AIR INFILTRATION AROUND A FRENCH DOOR SEAL. THIS UNIT WAS NEWLY INSTALLED BY A LICENSED CONTRACTOR ON A NEW HOME ADDITION.

STEP 3

A PLAN OF ACTION



- Identification of missing insulation within the ceiling space.

- Thermal imaging is non destructive testing with positive results.

- Properly installed insulation to Department of Energy standards.

- A properly performing thermal envelope creates interior comfort and reduced HVAC usage.

ROI = RETURN ON INVESTMENT

DOLLARS THAT MAKE SENSE

THE $ COST OF CORRECTIVE ACTION

- Sometimes this may be as simple as the cost of a light bulb replacement, and calculations of the reduced wattage consumed, times the current Kwh rate.

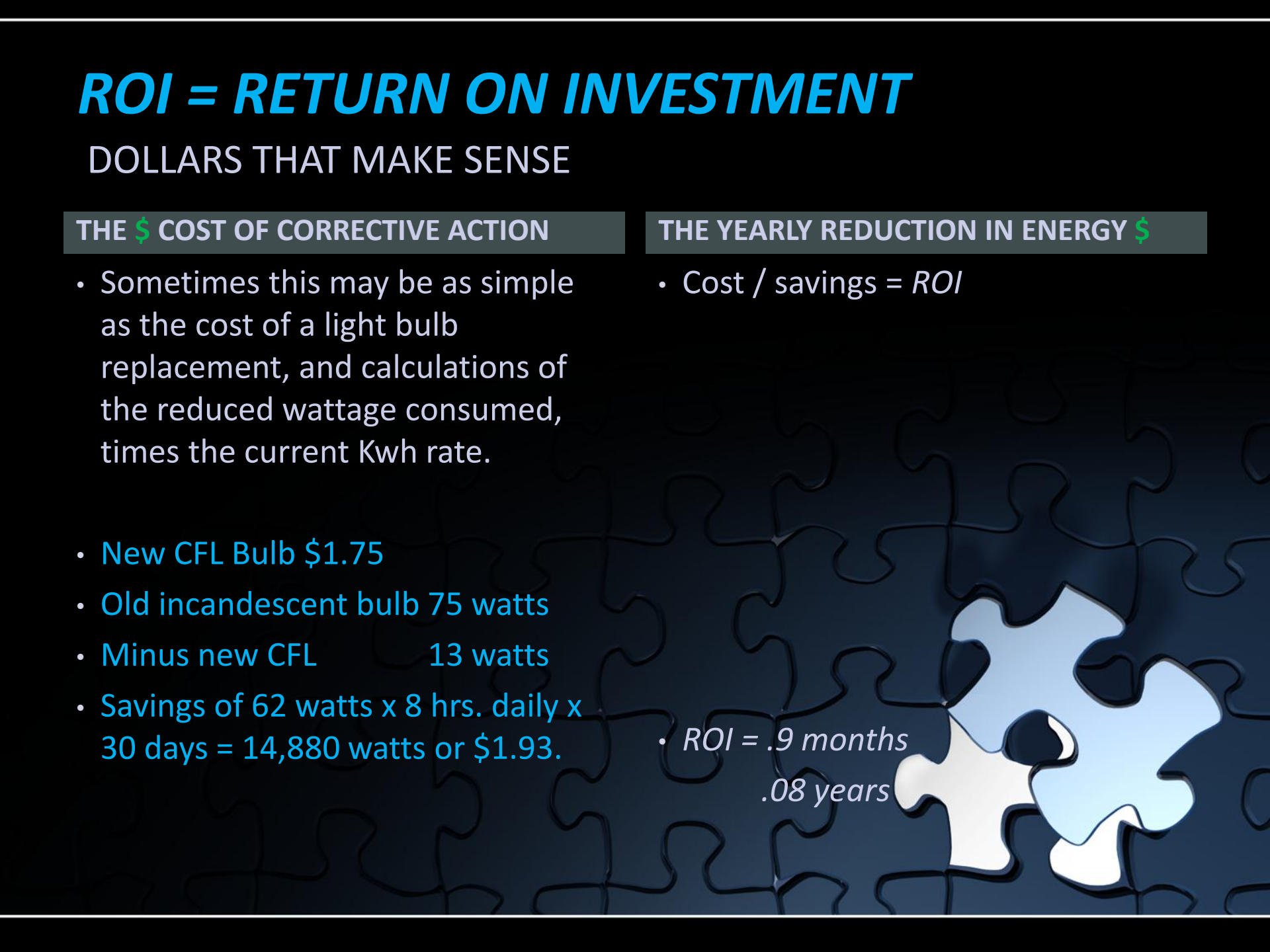
- New CFL Bulb $1.75
- Old incandescent bulb 75 watts
- Minus new CFL 13 watts
- Savings of 62 watts x 8 hrs. daily x 30 days = 14,880 watts or $1.93.

THE YEARLY REDUCTION IN ENERGY $

- Cost / savings = *ROI*

- *ROI = .9 months*

  .08 years



TRACKING DATA

THIS *MAY* REQUIRE EXPERT ASSISTENCE

Dollar/Usage Summary

	Billed		
Bill Date	Billed Amount	KWH Amount	KWH
07-JUN-12	361.85	289.88	2790
07-MAY-12	247.66	194.92	1876
05-APR-12	224.41	175.59	1690
07-MAR-12	204.55	159.07	1531
07-FEB-12	229.29	179.64	1729
05-JAN-12	244.91	160.63	1546
07-DEC-11	265.83	177.98	1713
07-NOV-11	282.74	192.53	1853
06-OCT-11	363.20	262.24	2524
07-SEP-11	492.38	372.79	3588
05-AUG-11	439.80	328.17	3285
07-JUL-11	351.01	242.36	2426
07-JUN-11	346.79	238.86	2391
05-MAY-11	300.79	200.70	2009
07-APR-11	911.72	732.77	7335
07-MAR-11	343.98	269.73	2700
07-FEB-11	319.48	249.75	2500
06-JAN-11	196.99	149.85	1500
07-DEC-10	279.12	209.79	2100
05-NOV-10	291.79	219.78	2200
07-OCT-10	298.12	224.78	2250
07-SEP-10	329.76	249.75	2500
05-AUG-10	274.05	205.79	2060
07-JUL-10	234.81	174.83	1750
07-JUN-10	323.44	244.76	2450
06-MAY-10	265.20	198.80	1990
07-APR-10	234.81	174.83	1750
05-MAR-10	255.07	190.81	1910
05-FEB-10	196.99	149.85	1500
07-JAN-10	254.55	196.80	1970
07-DEC-09	75.72	50.95	510

Continued on next page…

5

Yearly averaged consumption data will allow accurate assessment of viability of corrective actions taken.

In short was it $ money well spent ?

SATISFACTION

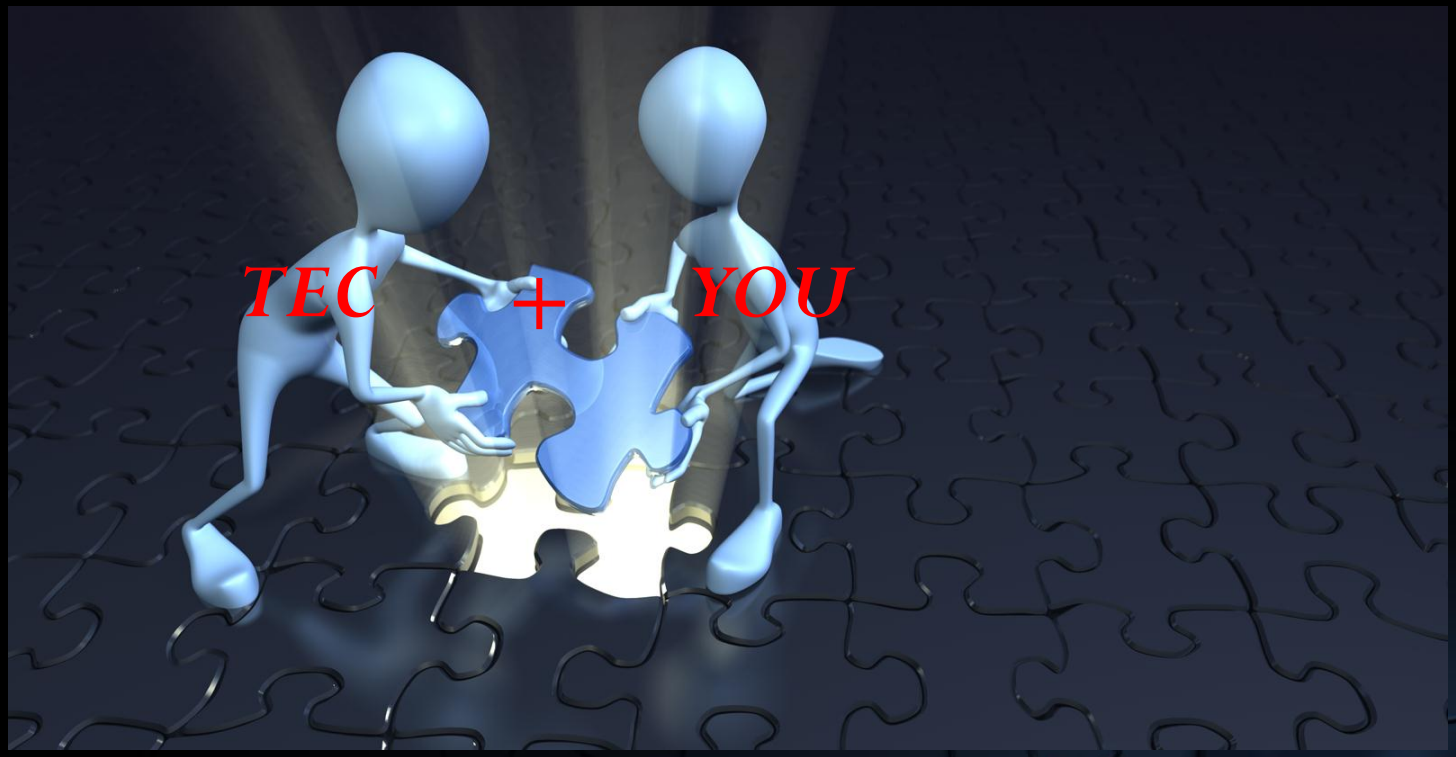
INDIVIDUAL COMFORT LEVEL, ***REMEMBER …***

IT'S ALL RELATIVE…

How much are you willing to spend?

OR

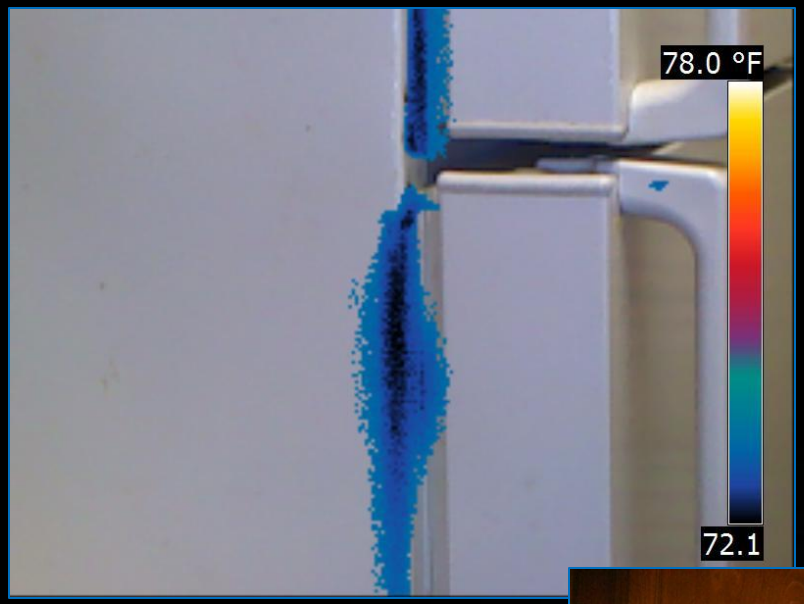
Percent % of your monthly budget?



TOGETHER WE CAN IDENTIFY AND REDUCE YOUR ENERGY CONSUMPTION.

GREEN SPACE SHADING

EXTREME EXAMPLE !

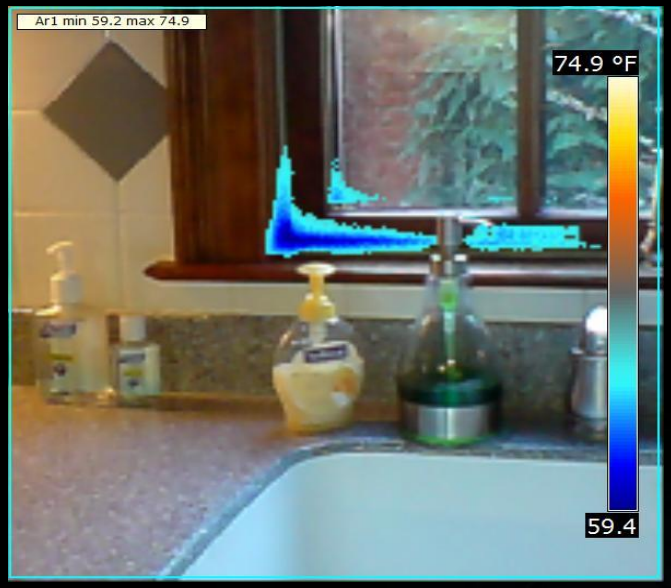


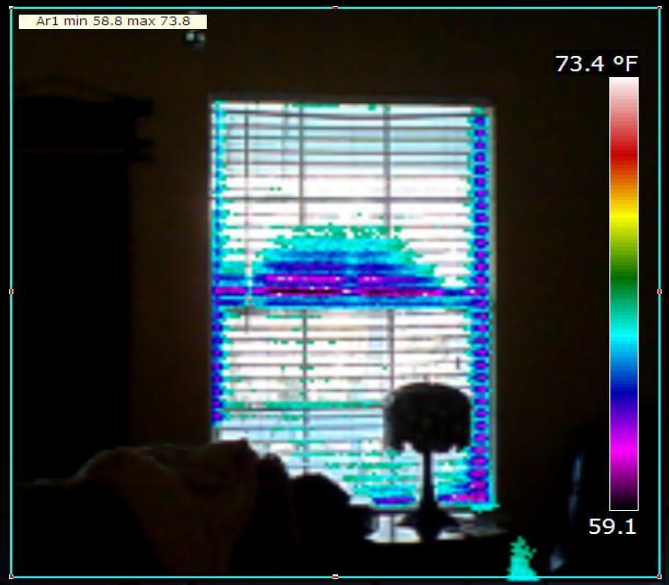
REFRIGERATORS

A COMMON PROBLEM IMAGED IS POOR SEAL CONDITIONS ON REFRRIGERATION EQUIPMENT.

DRYER

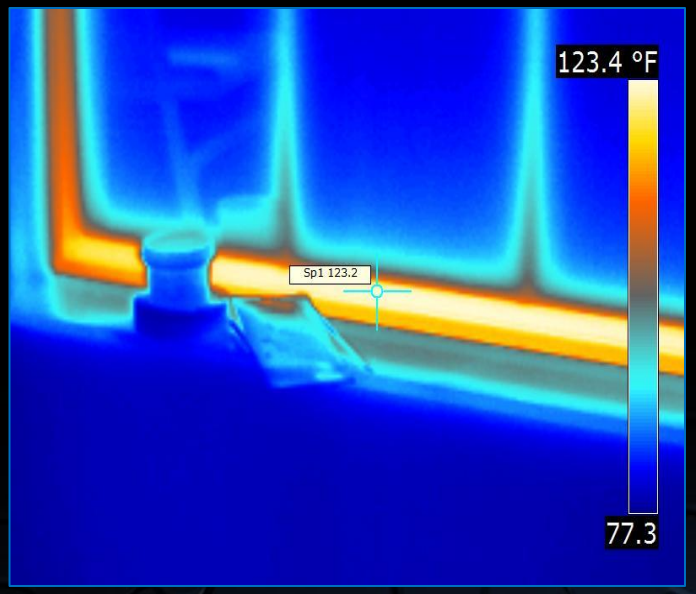
IS THERE PROPER AIR FLOW ?





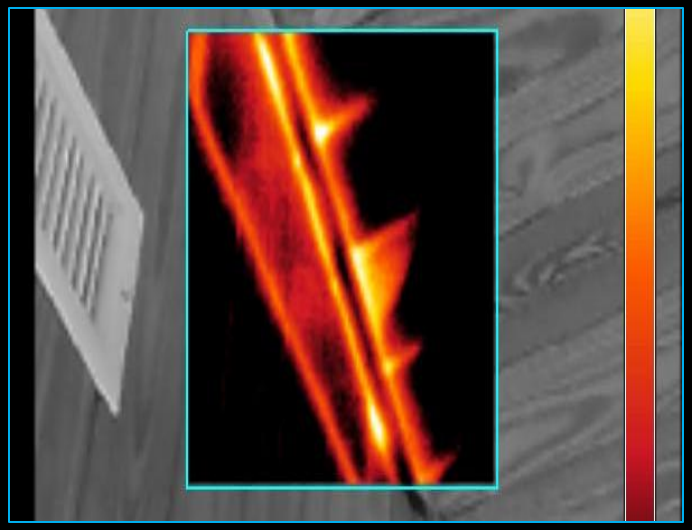
AIR INFILTRATION

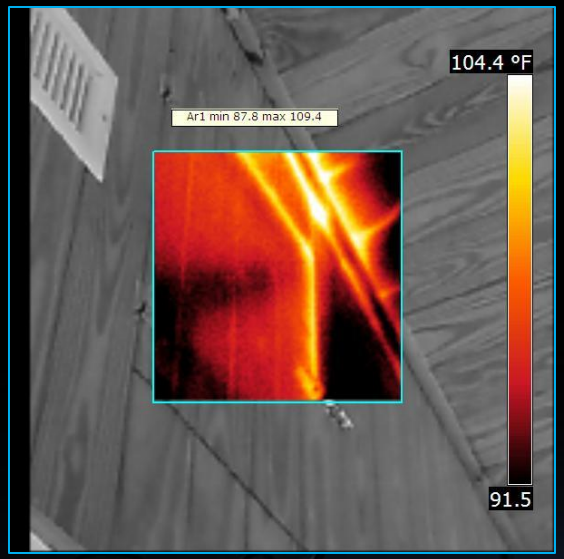
PINPOINTING POOR WINDOW SEALS.

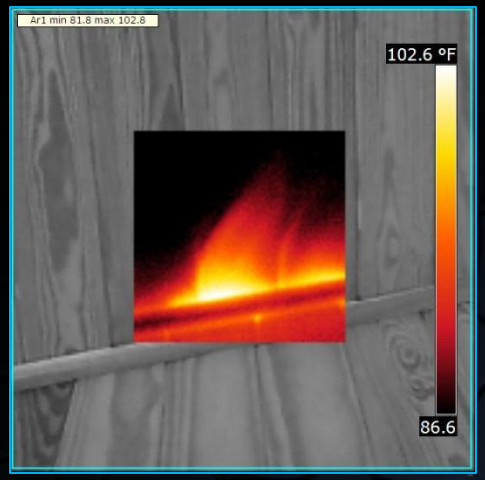


THERMAL TRANSFER

HEAT SYNC IS A COMMONLY SEEN ISSUE WITH ALUMINUM WINDOW FRAMING.

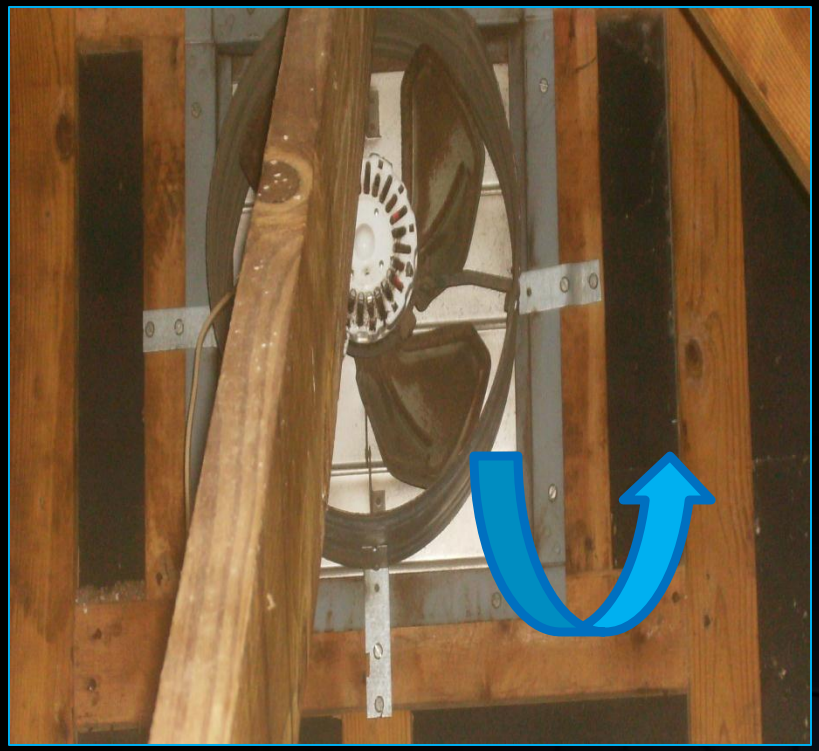






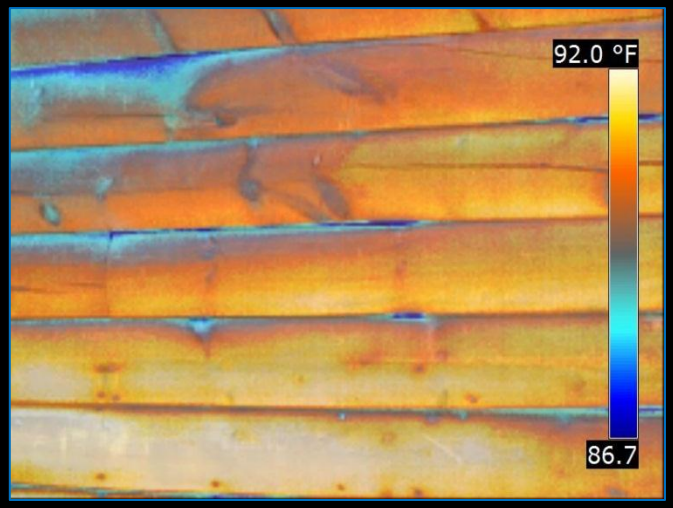
BUILDING ENVELOPE SEAL

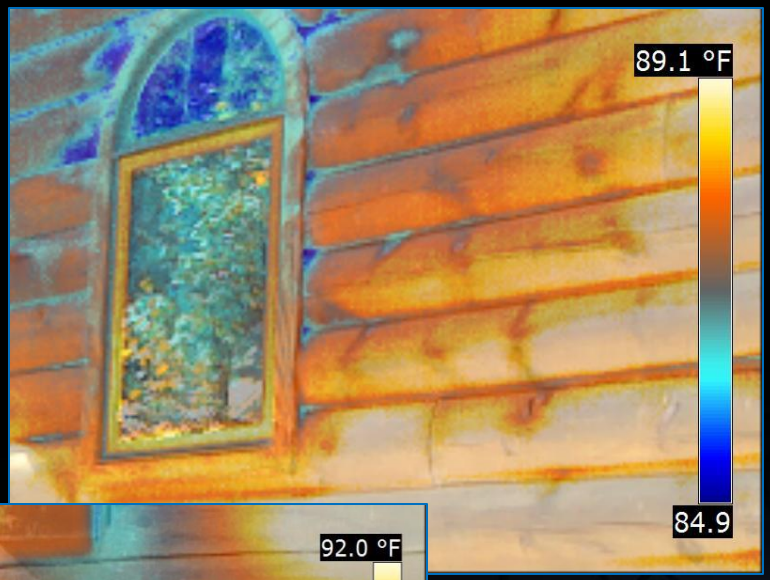
HEAT INTRUSION FROM THE ATTIC SPACE AT IMPROPERLY SEALED WALL TO CEILING PLATES, AND AT THE ATTIC ACCESS PANEL LOCATION.

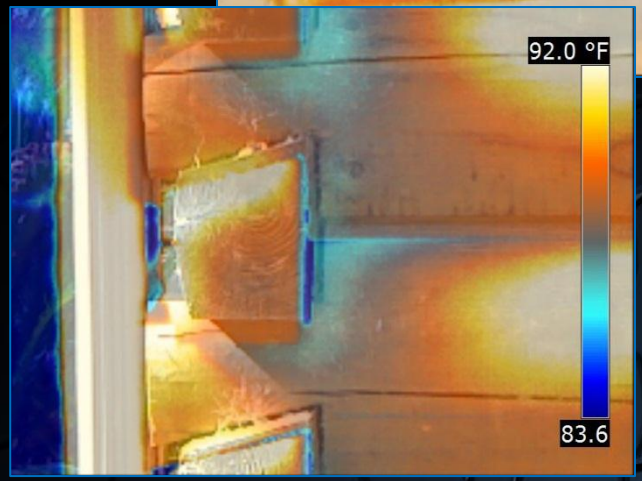


ATTIC FANS

PROPER INSTALLATION INSURES A DESIRED RESULT.

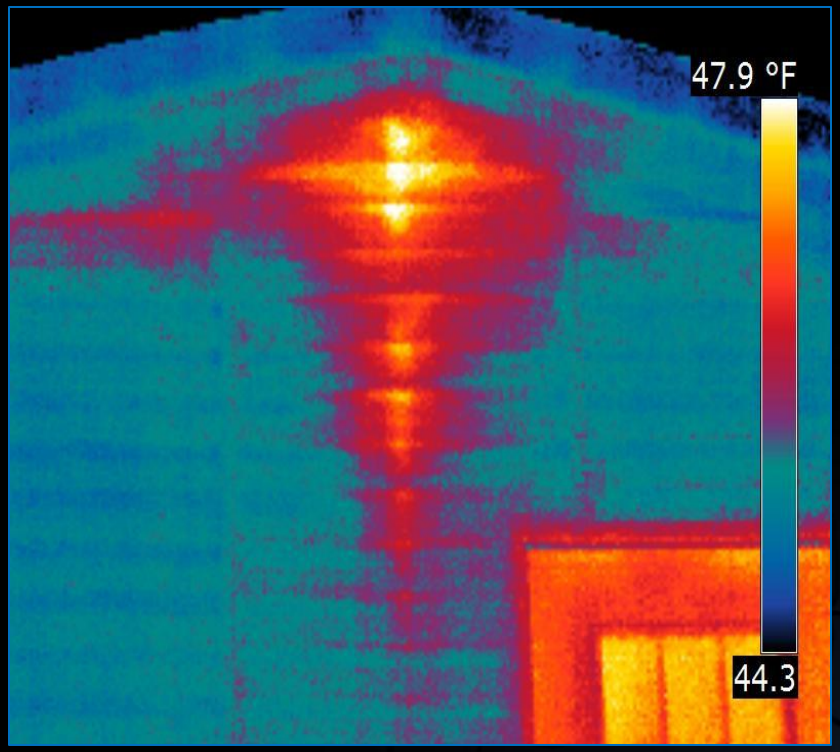


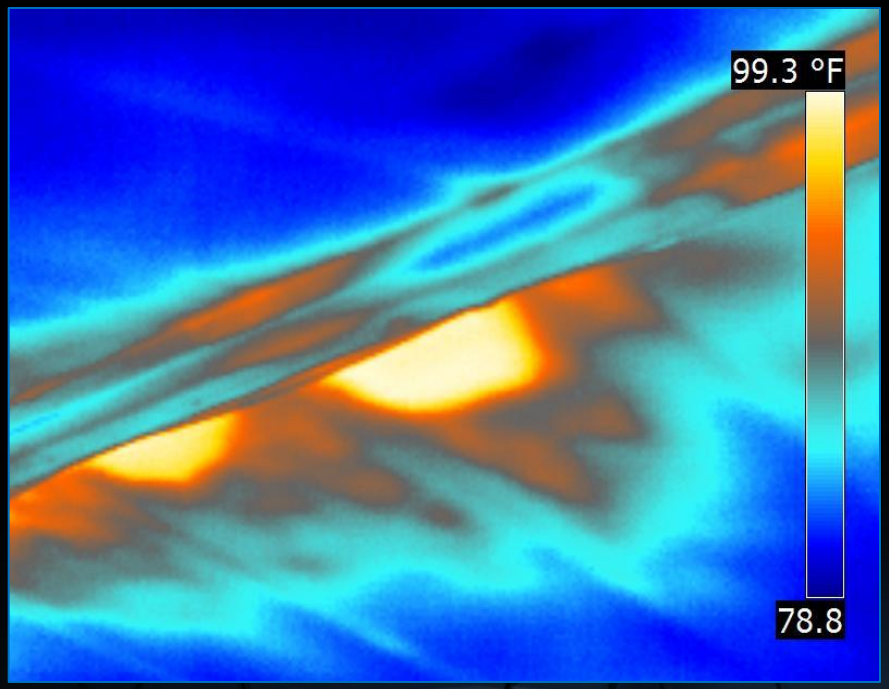




BUILDING ENVELOPE

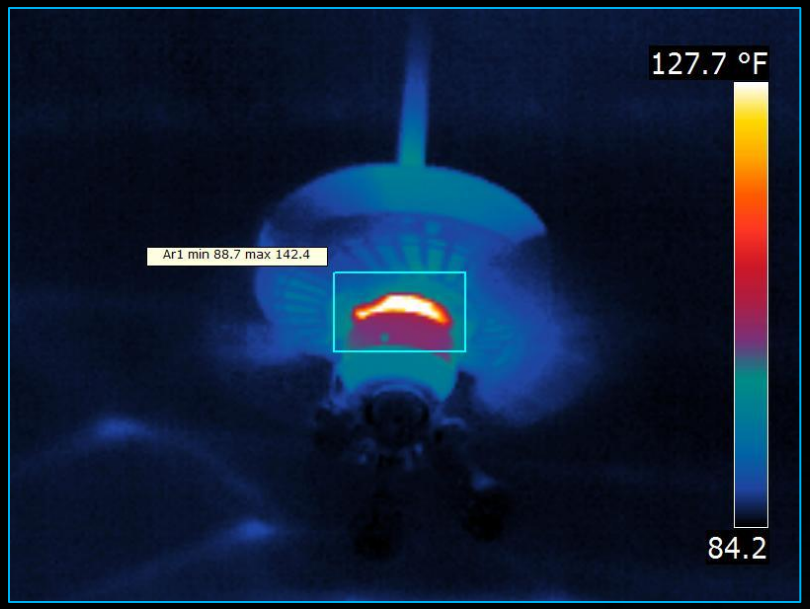
CONDITIONED AIR LOSS

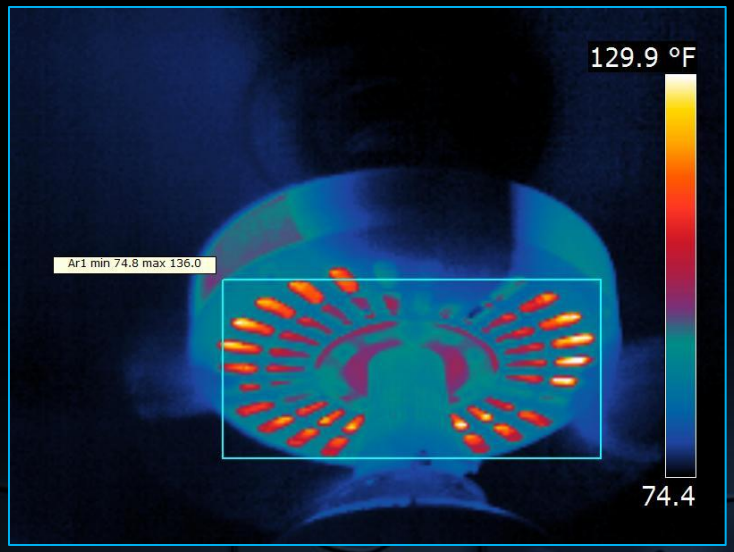




MOBILE HOMES-MULTI SECTION

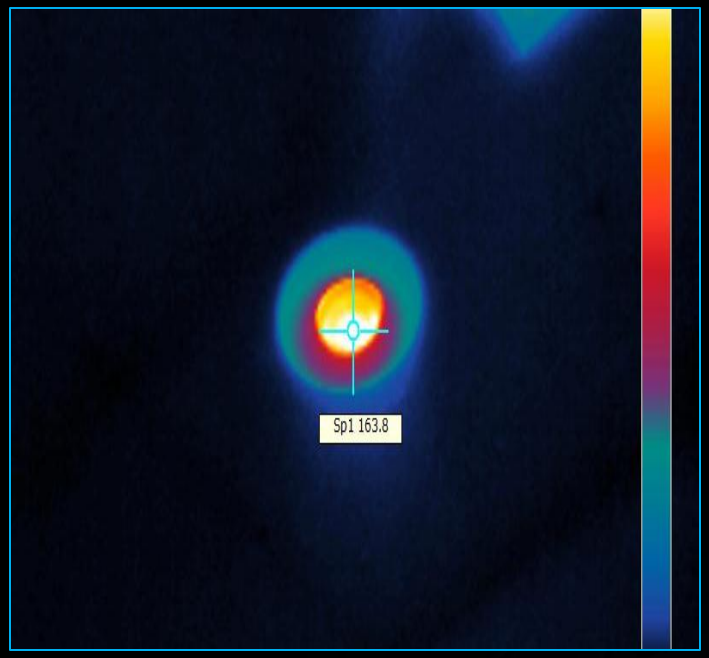
PROPER SET-UP IS CRUCIAL TO
STRUCTURAL ENERGY PERFORMANCE.

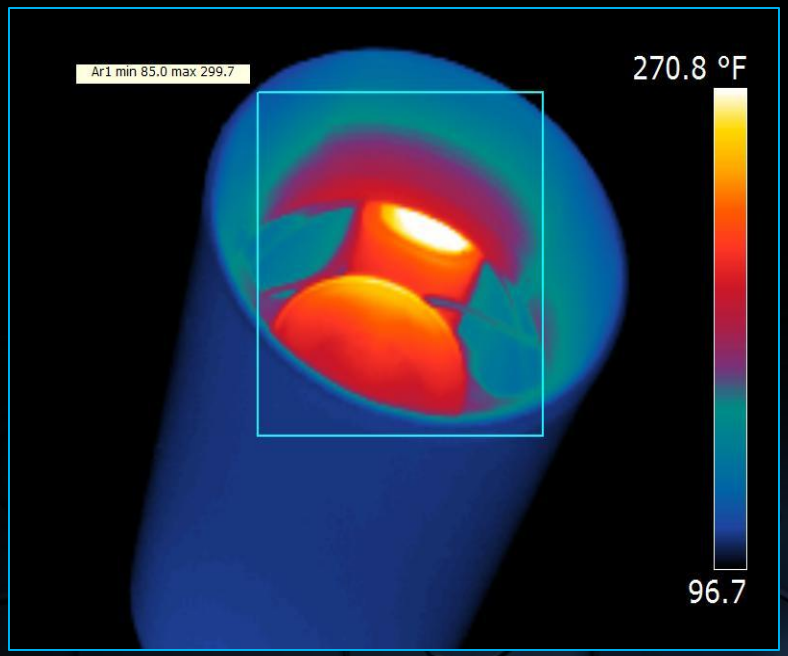




CEILING FANS

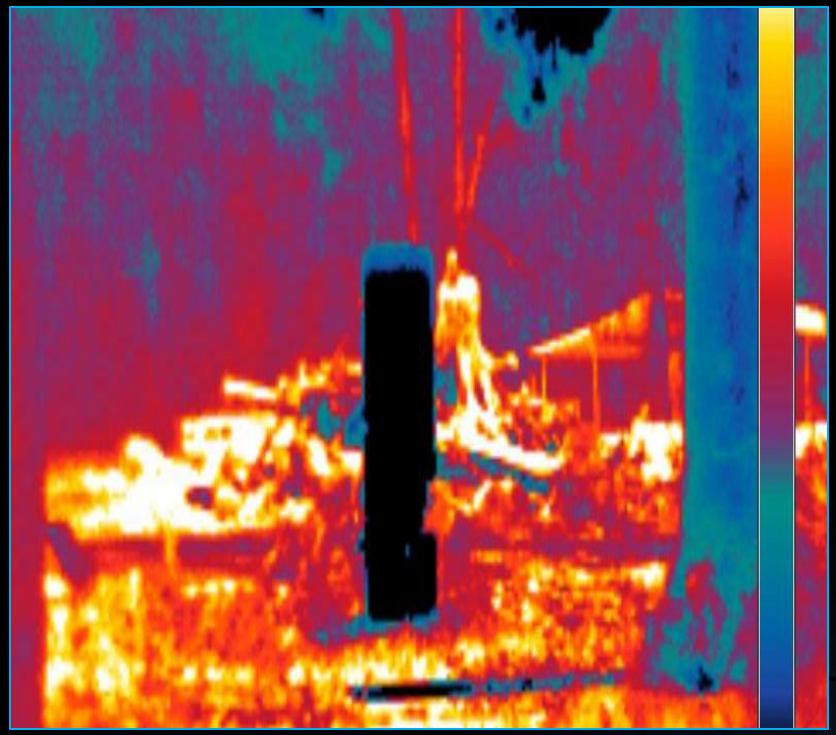
FANS ONLY MOVE AIR, NOT COOL IT. THEY ALSO BY NATURE OF BEING ELECTRICAL DEVISES PRODUCE HEAT, AFFECTING INTERIOR TEMPERATURES.

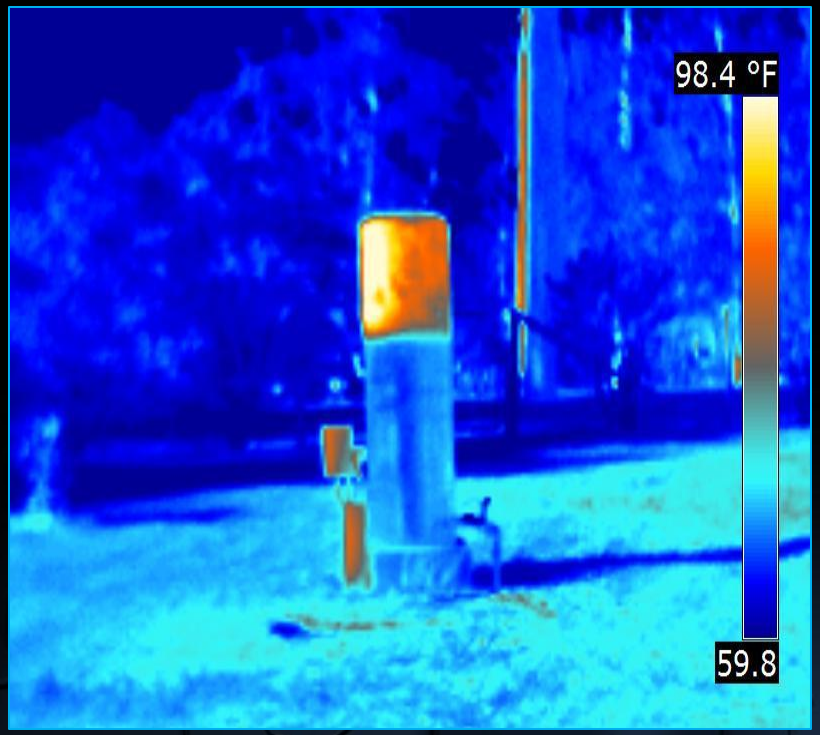




INCANDESCENT LIGHTING

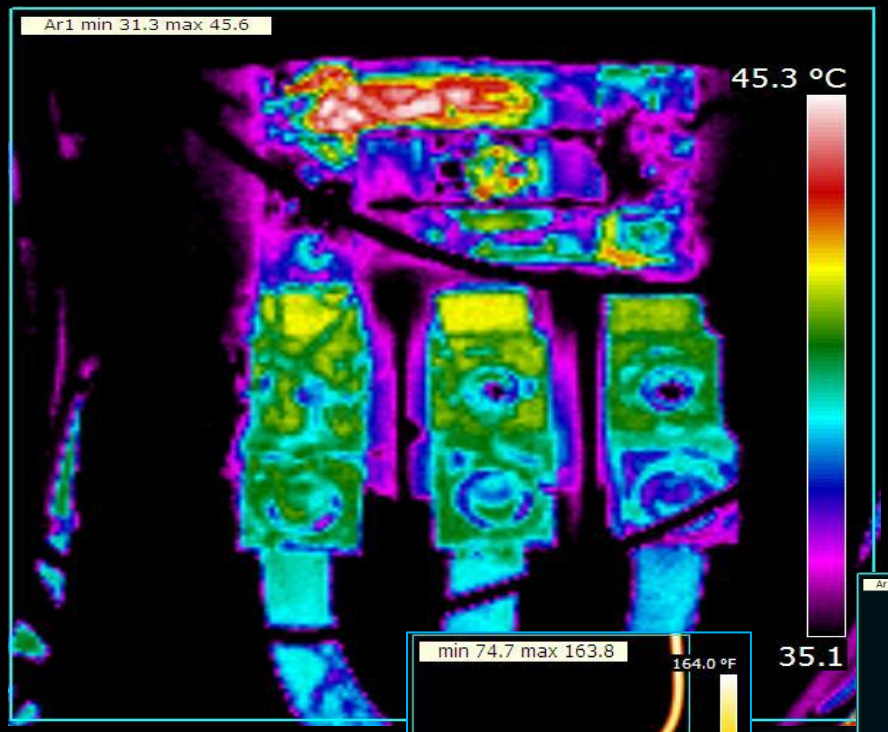
INTERIOR THERMAL LOADING HAS SOME CORRILATION TO LIGHTING TYPE AND USAGE.

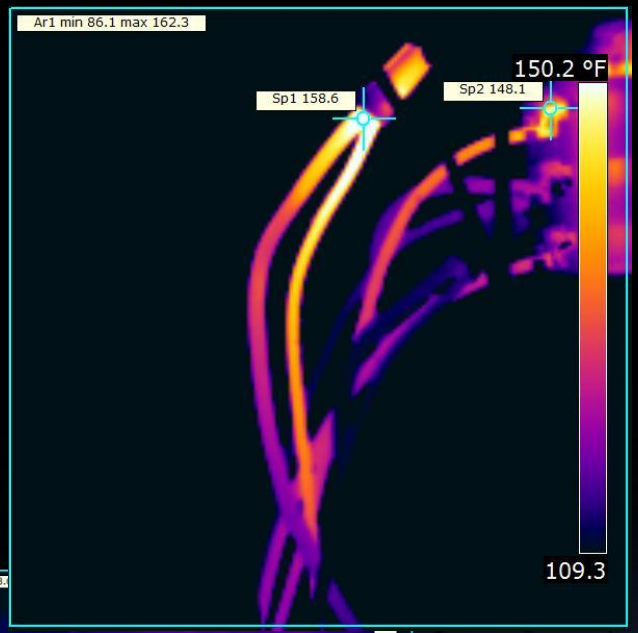


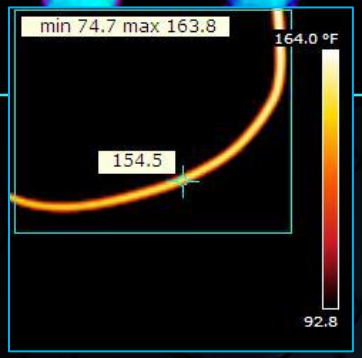


WELL TANKS

WATERLOGGED CONDITION LEFT, PROPER WATER TO AIR RATIO RIGHT.

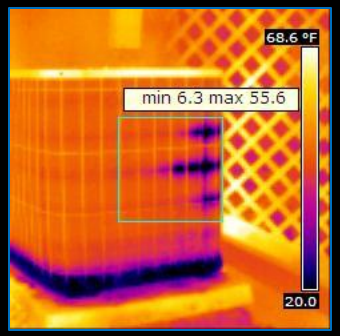


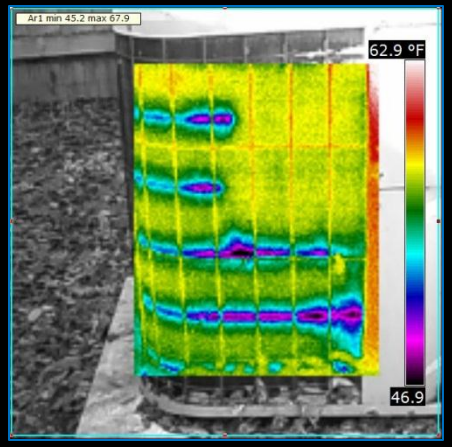


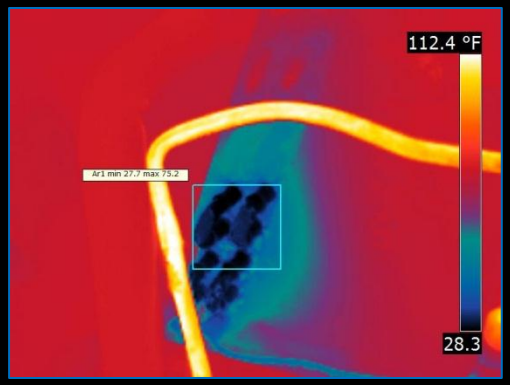


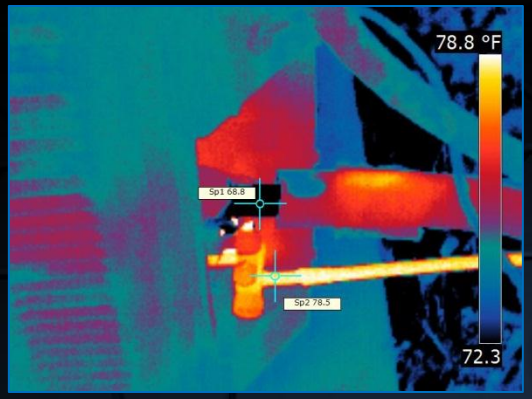
ELECTRICAL INSPECTIONS

LOCATE THERMAL ANOMALIES
WITHIN ELECTRICAL CURCUITS FASTER
AND MORE ACCURATELY.



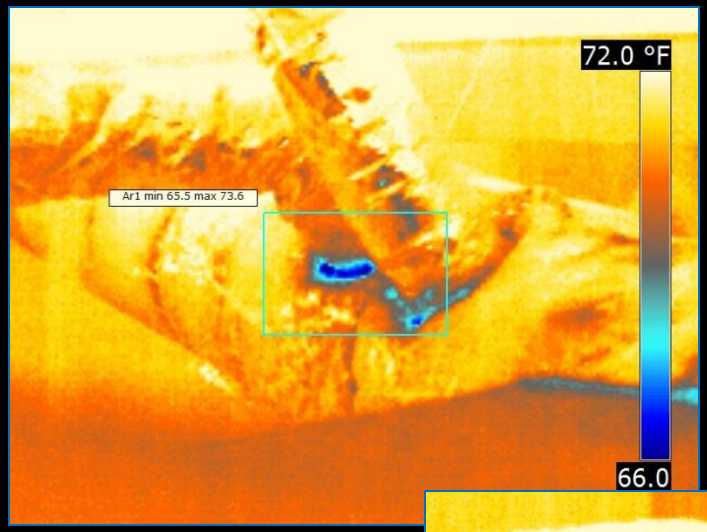


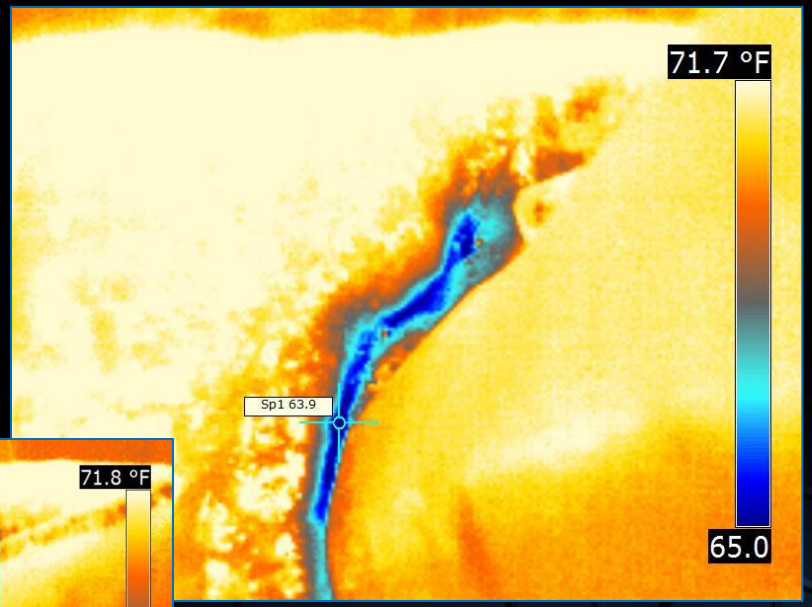


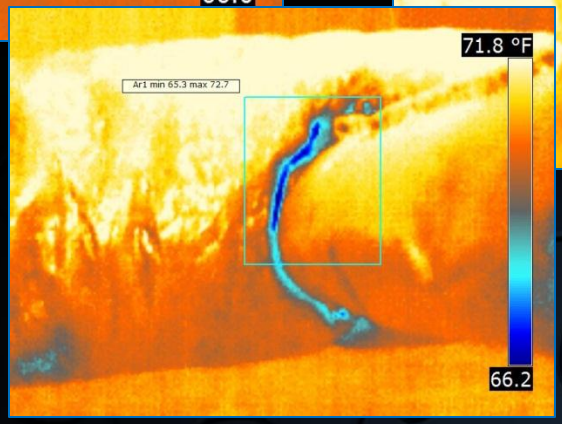


HVAC

THERMAL IMAGING ALLOWS QUICK ANALYSIS OF OPERATIONAL CONDITION ISSUES.

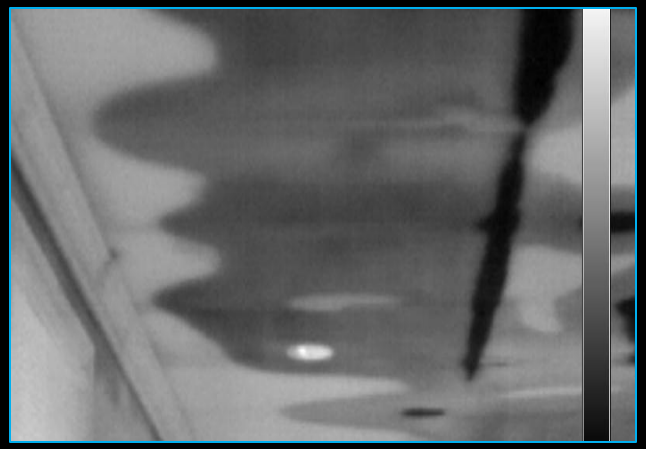


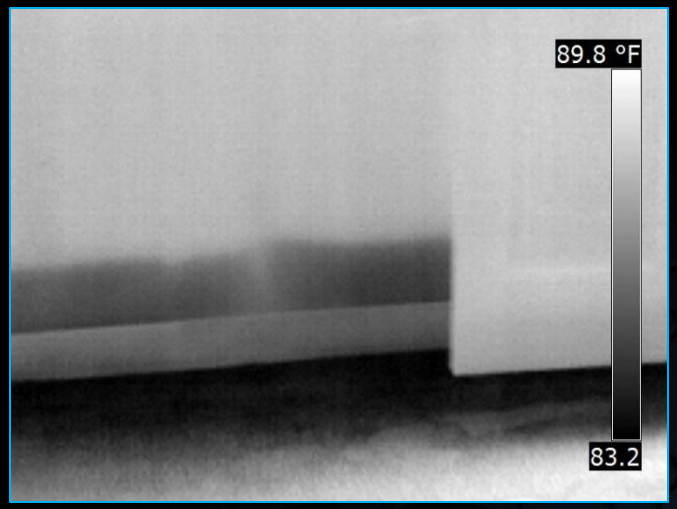




CONDITIONED AIR LOSS

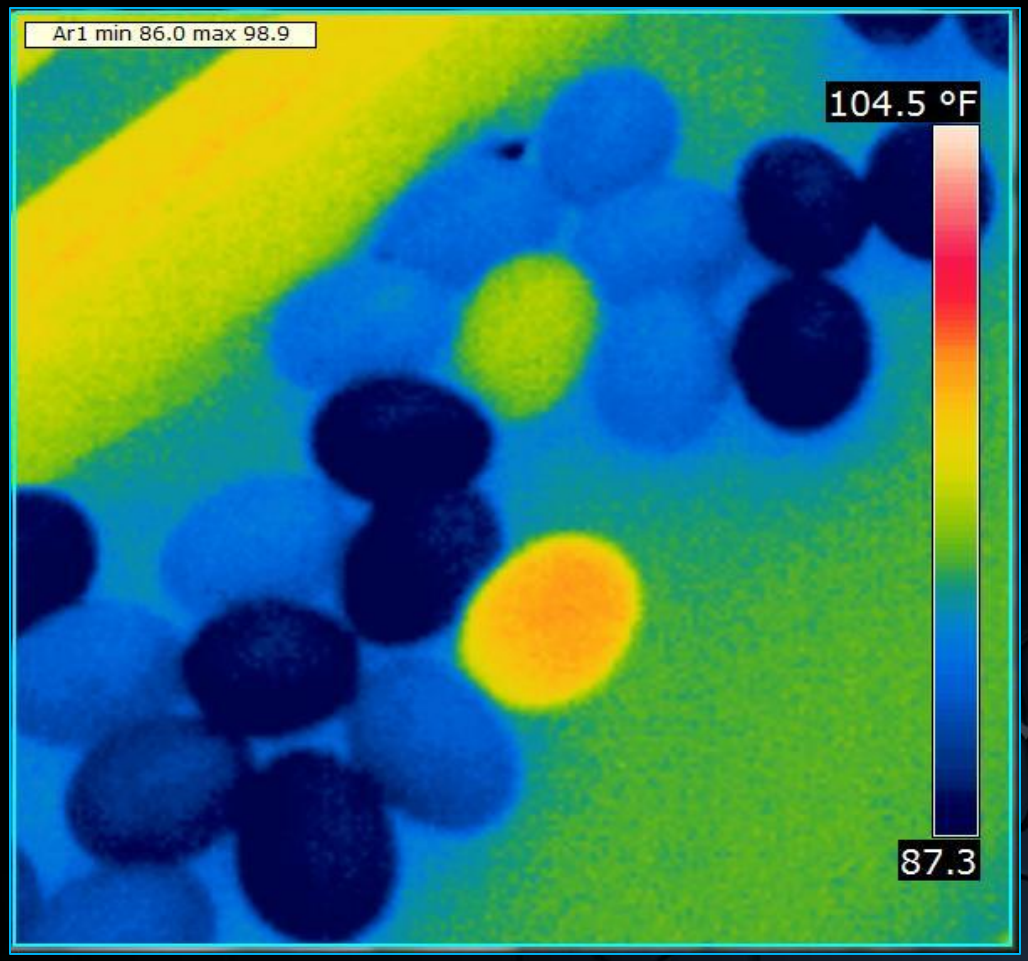
IMPROPER DUCTING INSTALLATION IS A PRIMARY CONTRIBUTING FACTOR IN ELEVATED ENERGY CONSUMPTION LEVELS.





JUNE 2012 TEC HQ

A BUSTED CHILLER LINE WITHIN THE MEZININE, AT THE HVAC AIR HANDLER LOCATION, CAUSES WATER DAMAGE. IR IMAGING IDENTIFIES SHEETROCK DAMAGE AND THE POTENTIAL FOR MOLD GROWTH.


Ar1 min 86.0 max 98.9
104.5 °F
87.3